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November 19, 2003

American Physical Society March Meeting  
Montreal, Canada  
March 22, 2004 through March 26, 2004

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# KINETICS OF FORMIC ACID AT HIGH PRESSURE AND TEMPERATURE\*

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*For presentation at:*

American Physical Society March Meeting 2004  
Montreal, Quebec, Canada  
22-26 March 2004

*Abstract*

We have developed a detailed kinetic model to follow the decomposition of formic acid at modestly high pressures (1-10 GPa) and temperature (500-1000K) and further include our refinement of a fluid exponential-6 equation of state for formic acid and corresponding reaction species. We also include the effects of bimolecular and water catalyzed reactions, calculated from *ab initio* molecular orbital calculations. We present a comparison between our simulations and experimental observations made using near-simultaneous high-pressure FTIR and Raman spectroscopy. We discuss, in detail, the implications our experimental observations provide in relation to computed reaction timescales and dominant species employed in our model.

\*This work was performed under the auspices of the U. S. Department of Energy by Lawrence Livermore National Laboratory under contract No. W-7405-ENG-48.